

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 2-5, 7-11, 29-31, and 33-35 are requested to be canceled.

Claims 1, 6, and 12 are currently being amended.

Claims 13-28, 32, and 36 have been withdrawn from consideration.

This amendment changes and deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1, 6, 12-28, 32, and 36 are now pending in this application.

**Claim Rejections - 35 U.S.C. § 112**

On page 2 of the Office Action, claim 10 was rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite. This rejection is moot in view of the cancellation of claim 10.

**Claim Rejections - 35 U.S.C. § 102**

On page 3 of the Office Action, claims 1-4, 6, 10-11, 29-31, 33, and 34 were rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Kemper (U.S. Patent No. 4,030,947).

Claim 1, as amended, recites that a method of processing nonferrous metal alloy comprises, *inter alia*, heating the nonferrous metal alloy to between 450 degree C and 530 degree C by a first liquid metal sodium such that the nonferrous metal alloy is put in a solid solution state and so as to generate a lattice effect in the nonferrous metal alloy caused by transition in the crystal structure of the nonferrous metal alloy, and after the heating step, cooling the nonferrous metal alloy with a second liquid metal sodium set to a temperature of less than 200 degree C, wherein the cooling step is adapted to suppress growth of a Guinier-Preston (GP) zone in the nonferrous metal alloy that developed while the nonferrous metal alloy was in the solid solution state.

Kemper discloses a step of heating of an aluminum alloy by solution treating in a fluid solution-heat-treat media (col. 3, lines 28-32), the fluid solution-heat-treat media

being oils, salts, or aqueous solutions of salt, mercury, water, air, or liquid air (col. 3, lines 17-19). Kemper also discloses a step of quenching the heat treated metallic substance in a fluid quenching media (col. 3, lines 32-36), the fluid quenching media being salts, oils, or mercury (col. 3, lines 22-24).

In contrast to claim 1, Kemper fails to disclose or suggest heating the nonferrous metal alloy to between 450 degree C and 530 degree C by a first liquid metal sodium. Rather, Kemper discloses heating an aluminum alloy with oils, salts, or aqueous (i.e., water) solutions of salt, mercury, water, air, or liquid air, not a liquid metal sodium.

Kemper also fails to disclose or suggest after the heating step, cooling the nonferrous metal alloy with a second liquid metal sodium set to a temperature of less than 200 degree C. Rather, Kemper discloses cooling the heated aluminum alloy with salts, oils, or mercury, not a liquid metal sodium.

Accordingly, claim 1 is patentably distinguishable from Kemper. Claim 6 is also patentably distinguishable from Kemper by virtue of its dependence from claim 1, as well as its additional recitations.

### **Claim Rejections - 35 U.S.C. § 103**

#### **1. Claims 5 and 35 (Kemper)**

On page 4 of the Office Action, claims 5 and 35 were rejected 35 U.S.C. § 103(a) as being obvious over Kemper. This rejection is moot in view of the cancellation of these claims.

#### **2. Claims 7-10 (Kemper and “Aluminum and Aluminum Alloys”)**

On page 5 of the Office Action, claims 7-10 were rejected 35 U.S.C. § 103(a) as being obvious over Kemper in view of “Aluminum and Aluminum Alloys” (hereinafter “the AAA reference”). This rejection is moot in view of the cancellation of these claims.

#### **3. Claim 12 (Kemper and Reimann)**

On page 5 of the Office Action, claim 12 was rejected 35 U.S.C. § 103(a) as being obvious over Kemper in view of Reimann (U.S. Patent No. 3,947,297).

Even if combinable, Reimann fails to cure the deficiencies of Kemper. Like Kemper, Reimann fails to disclose or suggest heating the nonferrous metal alloy to between 450 degree C and 530 degree C by a first liquid metal sodium, and after the heating step,

cooling the nonferrous metal alloy with a second liquid metal sodium set to a temperature of less than 200 degree C, as recited in claim 1. Accordingly, claim 12 is patentably distinguishable from the combination of Kemper and Reimann by virtue of its dependence from claim 1, as well as its additional recitations.

This invention includes the use of liquid metal sodium for heating and cooling nonferrous metal alloy, and four suitable sequential for treatment of nonferrous metal alloy. Thus, the strength of the nonferrous metal alloy can be assured.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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By R.D.S.

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